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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,013	03/22/2004	Dojin Kim	20030-02USA	2235

7590 10/30/2006

JHK Law
P.O. Box 1078
La Canada, CA 91012-1078

EXAMINER

FIORITO, JAMES

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,013

Applicant(s)

KIM ET AL.

Examiner

James A. Fiorito

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4, 12-13, 16, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation of a specie, eg. iron oxide, does not provide support for the genus, eg. catalytic metal compound.

In Claims 1, 4, 12-13, 16, and 18 "compound" is new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294 in view of Koikeda '308 and further in view of Snow '072.

Jiao teaches a method for synthesizing carbon nanotubes using Iron Oxide (Paragraph 41) by thermal chemical vapor deposition, which comprises the steps of: coating catalytic metal on a substrate (Paragraph 37); and synthesizing the carbon nanotubes (Paragraph 54).

Jiao does not expressly state the step of producing a catalytic metal using the magnetic fluid.

Khalafalla discloses a method of producing Iron Oxide from iron chloride and ammonium hydroxide (Column 3). Jiao and Khalafalla are analogous art because they are from the same field of endeavor, namely process that use Iron Oxide.

At the time of invention it would have been obvious to form the process of Jiao including a step of producing a catalytic metal using the magnetic fluid in view of Khalafalla. The suggestion or motivation for doing so would have been to provide a method for producing Iron Oxide as required by Jiao but not disclosed.

Jiao in view of Khalafalla does not expressly state a step adding a binder to the catalytic metal.

Koikeda teaches the use of a ceramic binder with Iron Oxide catalyst (Column 7-8). Jiao, Khalafalla and Koikeda are analogous art because they are from the same field of endeavor, namely process that use Iron Oxide.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla to include a step of adding a binder to the catalytic metal in view of the teaching of Koikeda. The suggestion or motivation for doing so would have been to increase the strength of the catalyst and to improve the moldability of the catalyst (Column 7-8).

Jiao in view of Khalafalla and Koikeda does not expressly state a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution.

Snow discloses a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution (Paragraph 40). Jiao, Khalafalla, Koikeda and Snow are analogous art because they are from the same field of endeavor, namely process that use Iron based catalysts.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla and Koikeda to include a step wherein the catalytic metal is coated on the substrate by dipping the substrate in a catalytic metal solution in view of the teaching of Snow. The suggestion or motivation for doing so would have been to deposit the catalyst on the surface of the substrate (Paragraph 40).

Claims 1, 4-9, 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiao '453 in view of Khalafalla '294, Koikeda '308 and Snow '072 as applied to claim 1, 3, 12-20 above, and further in view of Tsuda '471.

Jiao in view of Khalafalla, Koikeda and Snow does not expressly state a step adding acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid.

Tsuda discloses a step adding water and acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid (Column 16). Jiao, Khalafalla, Koikeda, Snow and Tsuda are analogous art because they are from the same field of endeavor, namely processes that use Iron Oxide.

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the method of Jiao in view of Khalafalla, Koikeda and Snow to include a step adding water and acetone to the aqueous iron chloride solution to separate the magnetite particles from liquid in view of the teaching of Tsuda. The suggestion or motivation for doing so would have been to separate the magnetite particles from liquid (Column 16).

Response to Arguments

Applicant's arguments filed 8/24/06 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

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Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Jiao teaches the use of the iron catalyst for the synthesis of carbon nanotubes, but does not disclose how to make the catalyst. Therefore, Jiao would have been motivated to use the processes of Khalafalla, Koikeda, Snow and Tsuda to form the required iron catalyst.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., magnetite nanoparticles) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on Standard.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

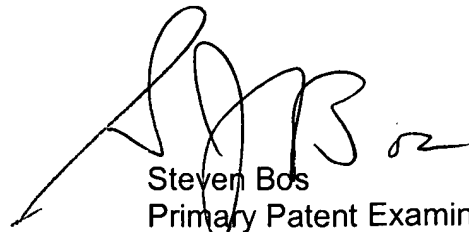
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James Fiorito
Patent Examiner
AU 1754

JF

A handwritten signature in black ink, appearing to read 'S. Bos', with a long horizontal stroke extending to the left.

Steven Bos
Primary Patent Examiner
AU 1754